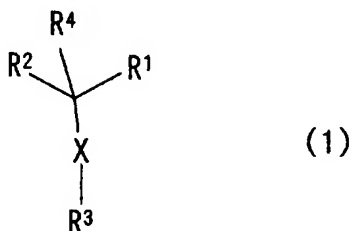


IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A compound represented by formula (1):



wherein,

R¹ represents phenyl which may have 1 to 3 substituents selected from halogen atoms, C₁₋₆ alkyl groups, trihalogenomethyl groups, C₁₋₆ alkoxy groups, formyl group, C₂₋₆ alkanoyl groups, carboxyl group, carboxyamino C₁₋₆ alkyl groups, C₁₋₆ alkoxycarbonylamino C₁₋₆ alkyl groups, oxo group, nitro group, cyano group, amidino group, C₂₋₆ alkenyloxy groups, hydroxy group, thioxo group, amino group, C₁₋₆ alkylamino groups, di(C₁₋₆ alkyl)amino groups, C₁₋₆ alkoxycarbonyl groups, carbamoyl group, C₁₋₆ alkylcarbamoyl groups, di(C₁₋₆ alkyl)carbamoyl groups, thiocarbamoyl group, C₁₋₆ alkylthiocarbamoyl groups, di(C₁₋₆ alkyl)thiocarbamoyl groups, mercapto group, C₁₋₆ alkylthio groups, C₁₋₆ alkylsulfinyl groups and C₁₋₆ alkylsulfonyl groups,

R² represents a pyridyl group which may be substituted with 1 to 3 substituents selected from halogen atoms, cyano group, C₁₋₆ alkyl groups, hydroxy group, C₁₋₆ alkoxy groups, C₂₋₆ alkenyloxy groups, carboxy C₁₋₆ alkyl groups, C₁₋₆ alkoxycarbonyl C₁₋₆ alkyl groups, hydroxy C₁₋₆ alkyl groups, C₆₋₁₀ aromatic hydrocarbon-sulfonyl C₁₋₆ alkyl groups, N,N-di(C₁₋₆ alkyl)aminosulfonyl C₁₋₆ alkyl groups, C₆₋₁₀ aromatic hydrocarbon-C₁₋₆ alkyl groups, C₆₋₁₀ aromatic hydrocarbon-thio C₁₋₆ alkyl groups, azido-C₁₋₆ alkyl groups, amino C₁₋₆ alkyl groups, C₁₋₆ alkylamino C₁₋₆ alkyl groups, di(C₁₋₆ alkyl)amino C₁₋₆ alkyl groups, hydroxy C₁₋₆ alkylamino C₁₋₆ alkyl groups, C₁₋₆ alkoxy C₁₋₆ alkylamino C₁₋₆ alkyl groups,

bis(C₁₋₆ alkoxy C₁₋₆ alkyl)amino C₁₋₆ alkyl groups, (hydroxy C₁₋₆ alkyl)(C₁₋₆ alkoxy C₁₋₆ alkyl)amino C₁₋₆ alkyl groups, C₂₋₆ alkanoylamino C₁₋₆ alkyl groups, di(C₂₋₆ alkanoyl)amino C₁₋₆ alkyl groups, carboxyamino C₁₋₆ alkyl groups, di(C₁₋₆ alkylcarbonylamino C₁₋₆ alkyl)amino C₁₋₆ alkyl groups, C₁₋₆ alkoxycarbonylamino C₁₋₆ alkyl groups, di(C₁₋₆ alkoxycarbonyl)amino C₁₋₆ alkyl groups, carbamoylamino C₁₋₆ alkyl groups, N-C₁₋₆ alkylcarbamoylamino C₁₋₆ alkyl groups, N,N-di(C₁₋₆ alkyl)carbamoylamino C₁₋₆ alkyl groups, aminosulfonylamino C₁₋₆ alkyl groups, N-C₁₋₆ alkylsulfonylamino C₁₋₆ alkyl groups, di(C₁₋₆ alkyl)aminosulfonylamino C₁₋₆ alkyl groups, C₆₋₁₀ aromatic hydrocarbon-sulfonylamino-C₂₋₆ alkanoylamino C₁₋₆ alkyl groups, amino C₁₋₆ alkylcarbonylamino C₁₋₆ alkyl groups, N-C₁₋₆ alkylamino C₁₋₆ alkylcarbonylamino C₁₋₆ alkyl groups, N,N-di(C₁₋₆ alkyl)amino C₁₋₆ alkylcarbonylamino C₁₋₆ alkyl groups, C₆₋₁₀ aromatic hydrocarbon-C₂₋₆ alkenylcarbonylamino C₁₋₆ alkyl groups, C₆₋₁₀ aromatic hydrocarbon-carbonylamino C₁₋₆ alkyl groups, C₆₋₁₀ aromatic hydrocarbon-thiocarbonylamino C₁₋₆ alkyl groups, C₁₋₆ alkoxyoxalylamino C₁₋₆ alkyl groups, (C₆₋₁₀ aromatic hydrocarbon-sulfonyl)(C₁₋₆ alkyl)amino C₁₋₆ alkyl groups, C₁₋₆ alkylsulfonylamino C₁₋₆ alkyl groups, C₁₋₆ alkylsulfonylamino C₁₋₆ alkyl groups, carbamoyloxy C₁₋₆ alkyl groups, N-C₁₋₆ alkylcarbamoyloxy C₁₋₆ alkyl groups, N,N-di(C₁₋₆ alkyl)carbamoyloxy C₁₋₆ alkyl groups, C₆₋₁₀ aromatic hydrocarbon-C₁₋₆ alkylcarbamoyloxy C₁₋₆ alkyl groups, C₁₋₆ alkoxycarbonyloxy-C₁₋₆ alkyl groups, C₆₋₁₀ aromatic hydrocarbon-oxycarbonyloxy C₁₋₆ alkyl groups, C₆₋₁₀ aromatic hydrocarbon carbonylhydrazonomethyl groups, C₂₋₆ alkenyl groups, carboxy-C₂₋₅ alkenyl groups, C₁₋₆ alkoxycarbonyl-C₂₋₆ alkenyl groups, carbamoyl C₂₋₆ alkenyl groups, formyl group, carboxyl group, C₆₋₁₀ aromatic hydrocarbon-carbonyl groups, C₁₋₆ alkoxycarbonyl groups, carbamoyl group, N-C₁₋₆ alkylcarbamoyl groups, N,N-di(C₁₋₆ alkyl)carbamoyl groups, C₃₋₈ cycloalkyl-C₁₋₆ alkylcarbamoyl groups, C₁₋₆ alkylthio C₁₋₆ alkylcarbamoyl groups, C₁₋₆ alkylsulfinyl C₁₋₆ alkylcarbamoyl groups, C₁₋₆ alkylsulfonyl C₁₋₆ alkylcarbamoyl groups,

hydroxyaminocarbonyl group, C₁₋₆ alkoxycarbamoyl groups, hydroxy C₁₋₆ alkylcarbamoyl groups, C₁₋₆ alkoxy C₁₋₆ alkylcarbamoyl groups, amino C₁₋₆ alkylcarbamoyl groups, amino C₁₋₆ alkylthiocarbamoyl groups, hydroxy C₁₋₆ alkylcarbamoyl groups, C₁₋₆ alkoxycarbonyl C₁₋₆ alkylcarbamoyl groups, C₁₋₆ alkoxycarbonylamino C₁₋₆ alkylcarbamoyl groups, C₁₋₆ alkoxycarbonylamino C₁₋₆ alkylthiocarbamoyl groups, C₆₋₁₀ aromatic hydrocarbon-carbamoyl groups, hydrazinocarbonyl groups, N-C₁₋₆ alkylhydrazinocarbonyl groups, N'-C₁₋₆ alkylhydrazinocarbonyl groups, N',N'-di(C₁₋₆ alkyl)hydrazinocarbonyl groups, N,N'-di(C₁₋₆ alkyl)hydrazinocarbonyl groups, N,N',N'-tri(C₁₋₆ alkyl)hydrazinocarbonyl groups, amino group, C₁₋₆ alkoxy C₁₋₆ alkylamino groups, amino C₁₋₆ alkylamino groups, (C₁₋₆ alkylamino C₁₋₆ alkylamino groups, (C₁₋₆ alkylamino C₁₋₆ alkyl)(C₁₋₆ alkyl)amino groups, C₁₋₆ alkoxycarbonylamino C₁₋₆ alkylamino groups, di(C₁₋₆ alkyl)amino C₁₋₆ alkylamino groups, carboxyl C₁₋₆ alkylamino groups, (carboxyl C₁₋₆ alkyl)(C₁₋₆ alkyl)amino groups, hydroxy C₁₋₆ alkylamino groups, (hydroxy C₁₋₆ alkyl)(C₁₋₆ alkyl)amino groups, C₁₋₆ alkylthio C₁₋₆ alkylamino groups, C₁₋₆ alkylaminocarbonyloxy C₁₋₆ alkylamino groups, (C₁₋₆ alkylaminocarbonyloxy C₁₋₆ alkyl)(C₁₋₆ alkyl)amino groups, C₁₋₆ alkylsulfinyl C₁₋₆ alkylamino groups, C₁₋₆ alkylsulfonyl C₁₋₆ alkylamino groups, groups represented by the formula: -N(R¹²)SO₂R¹¹ (wherein, R¹¹ represents a C₁₋₆ alkyl group, hydroxy C₁₋₆ alkyl group, amino C₁₋₆ alkyl group, C₁₋₆ alkylamino C₁₋₆ alkyl group, di(C₁₋₆ alkyl)amino C₁₋₆ alkyl group, carboxy C₁₋₆ alkyl group, carbamoyl C₁₋₆ alkyl group, trifluoromethyl group, difluoromethyl group, fluoromethyl group, amino group, C₁₋₆ alkylamino group or di(C₁₋₆ alkyl)amino group, R¹² represents a hydrogen atom, C₁₋₆ alkyl group, hydroxy group or amino group), hydroxy C₁₋₆ alkoxy C₁₋₆ alkylamino groups, C₆₋₁₀ aromatic hydrocarbon-C₁₋₆ alkylamino groups, C₁₋₆ alkoxycarbonylamino groups, C₆₋₁₀ aromatic hydrocarbon-carbonylamino groups, hydroxyimino group, C₁₋₆ alkoxyimino groups, oxo group, hydroxyimino C₁₋₆ alkyl groups, C₁₋₆ alkoxycarbonyl C₁₋₆ alkylamino groups, (C₂₋₆

alkanoylamino C₁₋₆ alkyl)amino groups, and C₆₋₁₀ aromatic hydrocarbon groups (in which, the C₆₋₁₀ aromatic hydrocarbon group may be substituted with 1 to 3 substituents selected from halogen atoms, C₁₋₆ alkyl groups, C₁₋₆ alkoxy groups, C₂₋₆ alkenyl groups, formyl group, C₂₋₆ alkanoyl groups, carboxyl group, carboxyamino C₁₋₆ alkyl groups, C₁₋₆ alkoxycarbonylamino C₁₋₆ alkyl groups, oxo group, nitro group, cyano group, amidino group, C₂₋₆ alkenyloxy groups, hydroxy group, thioxo group, amino group, C₁₋₆ alkylamino groups, di(C₁₋₆ alkyl)amino groups, amino C₁₋₆ alkyl groups, C₁₋₆ alkoxycarbonyl groups, carbamoyl group, C₁₋₆ alkylcarbamoyl groups, di(C₁₋₆ alkyl)carbamoyl groups, thiocarbamoyl group, C₁₋₆ alkylthiocarbamoyl groups, di(C₁₋₆ alkyl)thiocarbamoyl groups, C₂₋₆ alkanoylamino groups, C₂₋₆ alkanoyl(C₁₋₆ alkyl)amino groups, thio C₂₋₆ alkanoylamino groups, thio C₂₋₆ alkanoyl(C₁₋₆ alkyl)amino groups, formylamino group, formyl(C₁₋₆ alkyl)amino groups, thioformylamino group, thioformyl(C₁₋₆ alkyl)amino groups, C₂₋₆ alkanoyloxy groups, formyloxy group, mercapto group, C₁₋₆ alkylthio groups, C₁₋₆ alkylsulfinyl groups, C₁₋₆ alkylsulfonyl groups, aminosulfonyl group, C₁₋₆ alkylaminosulfonyl groups, di(C₁₋₆ alkyl)aminosulfonyl groups, C₁₋₆ alkylsulfonylamino groups, and C₁₋₆ alkylsulfonyl(C₁₋₆ alkyl)amino groups;

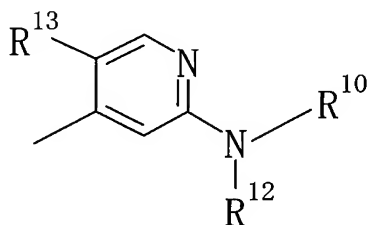
R³ represents pyridyl which may have 1 to 3 substituents selected from halogen atoms, C₁₋₆ alkyl groups, trihalogenomethyl groups, C₁₋₆ alkoxy groups, formyl group, C₂₋₆ alkanoyl groups, carboxyl group, carboxyamino C₁₋₆ alkyl groups, C₁₋₆ alkoxycarbonylamino C₁₋₆ alkyl groups, oxo group, nitro group, cyano group, amidino group, C₂₋₆ alkenyloxy groups, hydroxy group, thioxo group, amino group, C₁₋₆ alkylamino groups, di(C₁₋₆ alkyl)amino groups, C₁₋₆ alkoxycarbonyl groups, carbamoyl group, C₁₋₆ alkylcarbamoyl groups, di(C₁₋₆ alkyl)carbamoyl groups, thiocarbamoyl group, C₁₋₆ alkylthiocarbamoyl groups, di(C₁₋₆ alkyl)thiocarbamoyl groups, mercapto group, C₁₋₆ alkylthio groups, C₁₋₆ alkylsulfinyl groups and C₁₋₆ alkylsulfonyl groups,

R⁴ represents a hydrogen atom or a C₁₋₆ alkyl group,

X represents $-S-$, $-SO-$ or $-SO_2-$;
an N-oxide or ~~S-oxide~~ thereof; or a salt thereof..

Claims 2-7 (Canceled).

Claim 8 (Currently Amended): A compound according to Claim 1, wherein R^2 represents a group represented by the following formula:



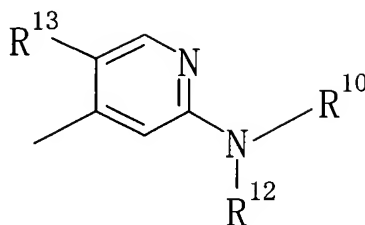
wherein,

R^{10} represents a hydrogen atom, C_{1-6} alkyl group, hydroxy C_{1-6} alkyl group, C_{1-6} alkylsulfinyl C_{1-6} alkyl group, C_{1-6} alkylsulfonyl C_{1-6} alkyl group, carboxy C_{1-6} alkyl group, , or a group represented by the formula: $-SO_2-R^{11}$ (in which, R^{11} represents a C_{1-6} alkyl, hydroxy C_{1-6} alkyl, amino C_{1-6} alkyl, C_{1-6} alkylamino C_{1-6} alkyl, di(C_{1-6} alkyl)amino C_{1-6} alkyl, carboxy C_{1-6} alkyl, carbamoyl C_{1-6} alkyl, trifluoromethyl, difluoromethyl, fluoromethyl, amino, C_{1-6} alkylamino or di(C_{1-6} alkyl)amino),

R^{12} represents a hydrogen atom, C_{1-6} alkyl group, hydroxy group, or amino group, and

R^{13} represents a C_{1-6} alkyl group, halogen atom or cyano group; an N-oxide or ~~S-oxide~~ thereof; or a salt thereof.

Claim 9 (Currently Amended): A compound according to Claim 1, wherein R^2 represents a group represented by the following formula:



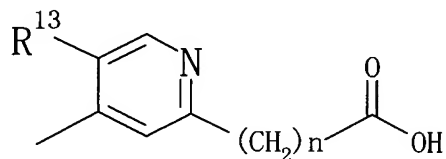
wherein,

R¹⁰ represents a group represented by the formula: -SO₂-R¹¹ (in which, R¹¹ represents a C₁₋₆ alkyl, hydroxy C₁₋₆ alkyl, amino C₁₋₆ alkyl, C₁₋₆ alkylamino C₁₋₆ alkyl, di(C₁₋₆ alkyl)amino C₁₋₆ alkyl, carboxy C₁₋₆ alkyl, carbamoyl C₁₋₆ alkyl, trifluoromethyl, difluoromethyl, fluoromethyl, amino, C₁₋₆ alkylamino or di(C₁₋₆ alkyl)amino),

R¹² represents a hydrogen atom, C₁₋₆ alkyl group, hydroxy group or amino group, and

R¹³ represents a C₁₋₆ alkyl group, halogen atom or cyano group; an N-oxide or S-oxide thereof; or a salt thereof.

Claim 10 (Currently Amended): A compound according to Claim 1, wherein R² represents a compound represented by the formula:

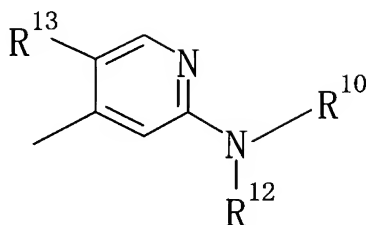


wherein,

R¹³ represents a C₁₋₆ alkyl group, halogen atom or cyano group, and n stands for an integer of from 0 to 6; an N-oxide or S-oxide thereof; or a salt thereof.

Claim 11 (Currently Amended): A compound according to Claim 1, wherein R¹ represents a 2,5-difluorophenyl or 2-fluoro-5-cyanophenyl group, R³ represents a 5-chloro-2-pyridyl, 6-chloro-3-pyridyl, or 6-trifluoromethyl-3-pyridyl group; R² represents a group

represented by the following formula:



wherein,

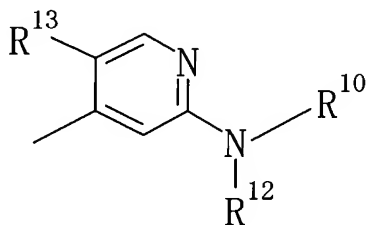
R¹⁰ represents a hydrogen atom, C₁₋₆ alkyl group, hydroxy C₁₋₆ alkyl group, C₁₋₆ alkylsulfinyl C₁₋₆ alkyl group, C₁₋₆ alkylsulfonyl C₁₋₆ alkyl group, carboxy C₁₋₆ alkyl group, or a group represented by the formula: -SO₂-R¹¹ (in which, R¹¹ represents a C₁₋₆ alkyl, hydroxy C₁₋₆ alkyl, amino C₁₋₆ alkyl, C₁₋₆ alkylamino C₁₋₆ alkyl, di(C₁₋₆ alkyl)amino C₁₋₆ alkyl, carboxy C₁₋₆ alkyl, carbamoyl C₁₋₆ alkyl, trifluoromethyl, difluoromethyl, fluoromethyl, amino, C₁₋₆ alkylamino, or di(C₁₋₆ alkyl)amino),

R¹² represents a hydrogen atom, C₁₋₆ alkyl group, hydroxy group, or amino group, and

R¹³ represents a C₁₋₆ alkyl group, halogen atom or cyano group; an N-oxide or S-oxide thereof; or a salt thereof.

Claim 12 (Currently Amended): A compound according to Claim 1, wherein R¹ represents a 2,5-difluorophenyl or 2-fluoro-5-cyanophenyl group, R³ represents a 5-chloro-2-pyridyl, 6-chloro-3-pyridyl or 6-trifluoromethyl-3-pyridyl group;

R² represents a group represented by the following formula:



wherein,

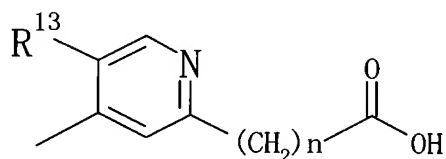
R^{10} represents a group represented by the formula: $-SO_2-R^{11}$ (in which, R^{11} represents a C_{1-6} alkyl, hydroxy C_{1-6} alkyl, amino C_{1-6} alkyl, C_{1-6} alkylamino C_{1-6} alkyl, di(C_{1-6} alkyl)amino C_{1-6} alkyl, trifluoromethyl, difluoromethyl, fluoromethyl, amino, C_{1-6} alkylamino or di(C_{1-6} alkyl)amino),

R^{12} represents a hydrogen atom, C_{1-6} alkyl group, hydroxy group or amino group, and

R^{13} represents a C_{1-6} alkyl group, halogen atom or cyano group; an N-oxide ~~or S-~~
~~oxide~~ thereof; or a salt thereof.

Claim 13 (Currently Amended): A compound according to Claim 1, wherein R^1 represents a 2,5-difluorophenyl or 2-fluoro-5-cyanophenyl group, R^3 represents a 5-chloro-2-pyridyl, 6-chloro-3-pyridyl, or 6-trifluoromethyl-3-pyridyl group;

R^2 represents a group represented by the following formula:



wherein,

R^{13} represents a C_{1-6} alkyl group, halogen atom or cyano group and n stands for an integer of from 0 to 6; an N-oxide ~~or S-~~
~~oxide~~ thereof; or a salt thereof.

Claims 14-16 (Canceled).

Claim 17 (Currently Amended): A pharmaceutical composition comprising a compound as claimed in Claim 1, an N-oxide ~~or S-~~
~~oxide~~ thereof, or a salt thereof and a pharmaceutically acceptable carrier.

Claims 18-20 (Canceled):

Claim 21 (Currently Amended; Withdrawn): A method of treating a disease resulting from abnormal production or secretion of β -amyloid protein, which comprises administering an effective amount of a compound as claimed in Claim 1, an N-oxide ~~or S-oxide~~ thereof, or a salt thereof.

Claim 22 (Previously Presented, Withdrawn): A method according to Claim 21, wherein the disease resulting from abnormal production or secretion of β amyloid protein is Alzheimer disease or Down syndrome.

Claim 23 (Previously Presented): A compound according to Claim 1, comprising at least one selected from the group consisting of:

[5-Chloro-4-[(5-chloropyridin-2-ylsulfonyl)(2,5-difluorophenyl)methyl]pyridin-2-yl]amine,

N-[5-Chloro-4-[(5-chloropyridin-2-ylsulfonyl)(2,5-difluorophenyl)methyl]pyridin-2-yl]methanesulfonamide,

t-Butyl [5-chloro-4-[(6-chloropyridin-3-ylthio)(2,5-difluorophenyl)methyl]pyridin-2-yl]carbamate,

[5-Chloro-4-[(6-chloropyridin-3-ylsulfonyl)(2,5-difluorophenyl)methyl]pyridin-2-yl]amine, and

[5-Chloro-4-[(2,5-difluorophenyl)(6-trifluoromethylpyridin-3-ylsulfonyl)methyl]pyridin-2-yl]amine..